INSTALLATION & CONFIGURATION MANUAL

HDME101 / HDME201

Single and Dual Input QAM Encoder / Modulator

TABLE OF CONTENTS

SAFETY PRECAUTIONS 3

PACKAGE CONTENTS 4

PRODUCT DESCRIPTION 4

INSTALLATION 6

UNPACKING and INSPECTION 6

PRODUCT PICTURES and DIAGRAMS 6

HDME101 ..... *6*

HDME201 ..... *6*

HARDWARE INSTALLATION and CONNECTIONS 7

MODULATOR SETUP AND CONFIGURATION 9

INITIAL SETUP 10

MODULATOR CONFIGURATION 10

Procedure to connect to the Encoder via the remote setup port 14

Procedure to connect to the Encoder for remote access and monitoring 19

CHD MODULATOR NOTES 20

Appendix: UPnP setup help 21-23

SAFETY PRECAUTIONS

The presence of this symbol is to alert the installer and user to the presence of uninsulated dangerous voltages within the product's enclosure that may be of sufficient magnitude to produce a risk of electric shock.

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE. DO NOT OPEN THE UNIT. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

- DO NOT apply power to the unit until all connections have been made, all components have been installed and all wiring has been properly terminated.
- DO NOT terminate, change or uninstall any wiring without first disconnecting the unit's power adapter from the device.
- This device is supplied with the appropriately rated internal power supply. The use of any other power supply could cause damage and invalidate the manufacturer's warranty.
- DO NOT connect the power cord to the device if the power cord is damaged.
- DO NOT cut the power cord.
- DO NOT plug the power cord into an AC outlet until all cables and connections to the device have been properly connected.
- The device should be installed in an environment consistent with its operating temperature specifications. Placement next to heating devices and ducts is to be avoided as doing so may cause damage. The device should not be placed in areas of high humidity.
- DO NOT cover any of the device's ventilation openings.
- DO NOT cover or obstruct the device's fan or fan openings.
- If the device has been in a cold environment allow it to warm to room temperature for at least 2 hours before connecting to an AC outlet.

PACKAGE CONTENTS

- One HDME-101 OR HDME201 QAM Encoder / Modulator
- One power cable
- One installation manual

Inspect the package before starting installation to ensure there is no damage and all supplied contents are present. Contact your distributor or dealer should the device be damaged or package contents are incomplete.

PRODUCT DESCRIPTION

THOR DIGITAL Series encoder / modulator convert Digital Video Broadcasting (DVB) Standard and High definition video and audio signals to a QAM RF output. The HDME series Encoders/Modulators single and dual intelligent inputs feature:

1) Front panel LCD Display for easy installation
2) High Resolution 1080i Video Resolution
3) Standard, IRD, HRC
4) Composite, Component, and HDMI (unencrypted) inputs
5) MPEG2 or MPEG4(AVC) Video Output
6) QAM256/QAM64 Selectable
7) Closed Captioning Support
8) 40dBmV Output
9) Adjustable attenuation
10) Rack mountable 1RU height.

THOR DIGITAL Encoders/Modulators are perfect for multi-video distribution solutions in the commercial and institutional market (hotels, motels, sports bars, restaurants, hospitals, casinos, business and university campuses, etc.) as well as home entertainment systems.

SPECIFICATIONS

INPUT	HDME101	HDME201
Input Connectors	HDMI input (Video+Audio)	HDMI input (Video+Audio) x2
	Y, Pr, Pb Component input (Video)	Y, Pr, Pb Component input (Video) x2
	Composite input (Video)	Composite input (Video) x2
	L / R Channel Audio input (Audio)	L / R Channel Audio input (Audio) x2
	Coaxial SPDIF input (Digital Audio ,LPCM) AC-3 Pass through	Coaxial SPDIF input (Digital Audio, LPCM) x2 AC-3 Pass through
	Optical SPDIF input (Digital Audio,LPCM) AC-3 Pass through	Optical SPDIF input (Digital Audio, LPCM) x2 AC-3 Pass through
Video Input Level	0.7 – 1.4V(peak-to peak)	0.7 – 1.4V(peak-to peak)
Video Mode	480i,480p,576i,576p,720P50,720P60, 1080i50,1080i60 1080P50,1080P60(Optional for AVC Encoding Only)	480i,480p,576i,576p,720P50,720P60, 1080i50,1080i60 1080P50,1080P60(Optional for AVC Encoding Only)
Audio input	Stereo / Digital	Stereo / Digital
Audio Input Level	0.4 – 0.8V (p-to-p)	0.4 – 0.8V (p-to-p)
Input Impedance	75Ω	75Ω
OUTPUT		
Frequency Range	54-864MHz (2-135)	54-864MHz (2-135)
Output Level	40 dBmV	40 dBmV
Output Impedance	75 ohm	75 ohm
Channel Bandwidth	6 MHz	6 MHz
Channel Level Adjustment	1-10 dB	1-10 dB
MER	38 dB min.	38 dB min.
MODULATION		
Video Resolution	1080i /720p/576i/576p/480p/480i 1080p @MPEG-AVC	1080i /720p/576i/576p/480p/480i 1080p @MPEG-AVC
Video Compression	AVC MP@Level4 / MPEG2 MP@HL	AVC MP@Level4 / MPEG2 MP@HL
Audio Compression	MPEG1 Layer II/ AAC (Advanced Audio Codec) AC-3 Pass through	MPEG1 Layer II/ AAC (Advanced Audio Codec) AC-3 Pass through
Constellations	64 QAM / 256 QAM	256 QAM
Control/Monitoring		
Front Panel LCD Control	Yes	Yes
Remote Setup Functions	Yes	Yes
Remote Monitoring / Status	Yes	Yes
GENERAL		
Power Supply	12 VDC 3 Amp	12 VDC 3 Amp
Consumption	1300 mA	1700 mA
Languages	English	English
Dimensions	482.7mm x 240mm x 44.4mm (19" x 9.45" x 1.75") 1RU	482.7mm x 240mm x 44.4mm (19" x 9.45" x 1.75") 1RU

Specifications subject to change without prior notice

INSTALLATION

System Installer must adhere to Article 820-40 of the NEC that provides guidelines for proper grounding and specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible.

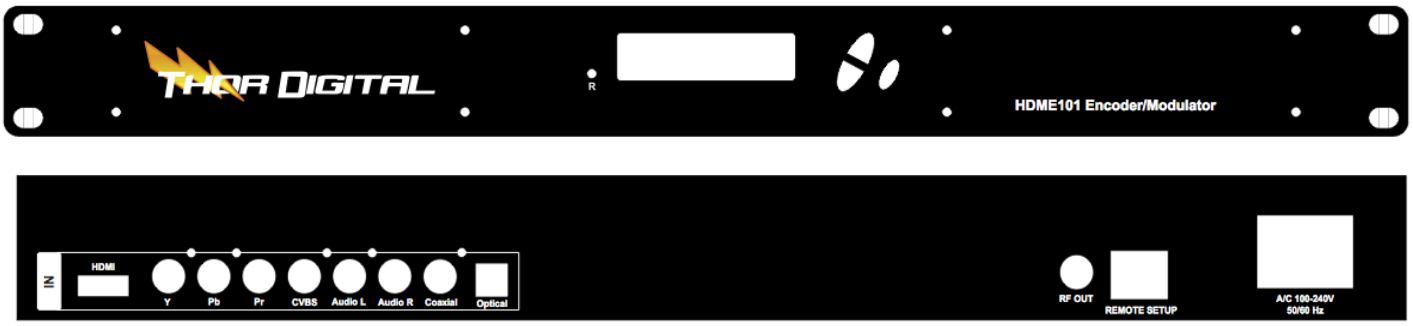
UNPACKING and INSPECTION

Each unit is shipped factory tested. Ensure all items are removed from the container prior to discarding any packing material.

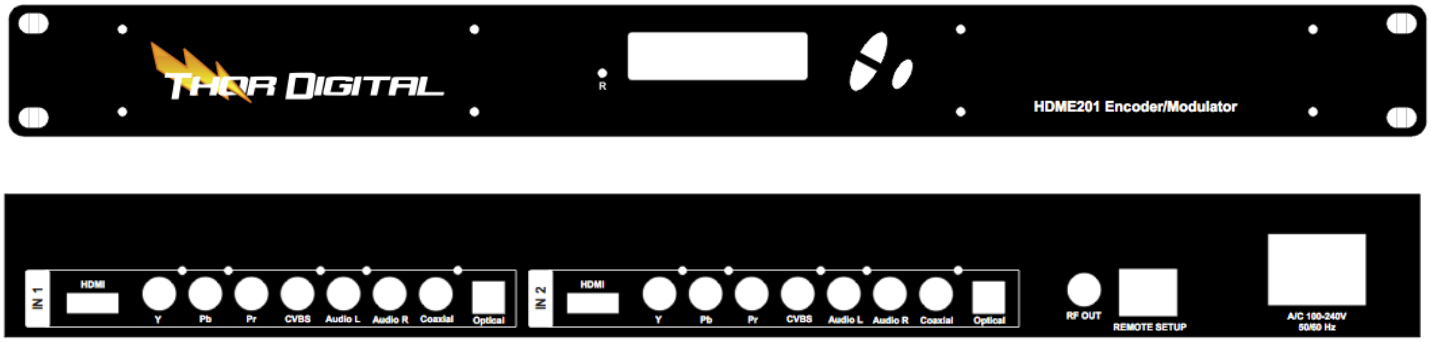
Thoroughly inspect the unit for shipping damage with particular attention to connectors and controls. If there is any sign of damage to the unit or damaged or loose connectors contact your distributor immediately. Do not put the equipment into service if there is any indication of defect or damage.

PRODUCT PICTURES and DIAGRAMS

HDME101



HDME201



HARDWARE INSTALLATION and CONNECTIONS

It is highly recommended that quality cables and connectors be used for all video and audio source connections.

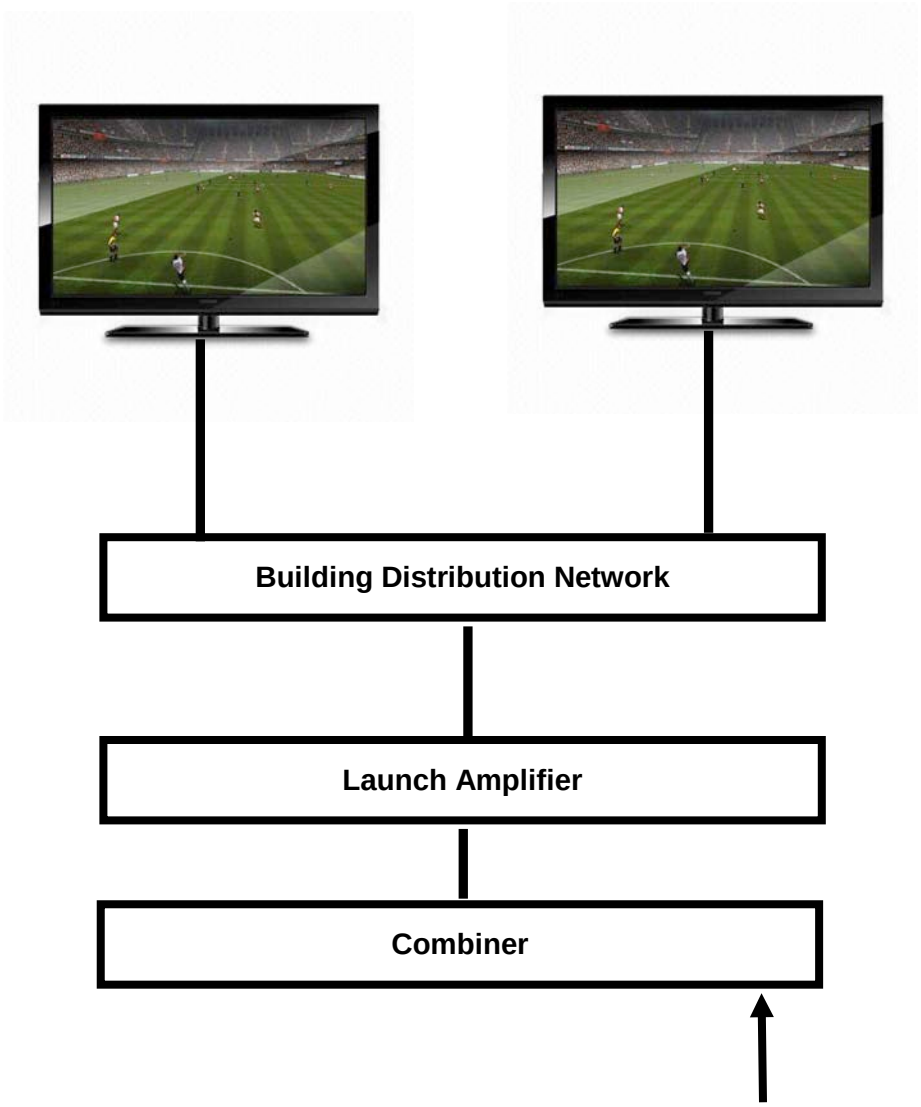
1. The unit is designed to be rack mounted in a standard EIA 19" rack. Use the supplied rack screws to mount the unit securely.
2. The unit comes standard with HDMI, Component, and Composite video inputs.

   The HDME encoder / modulator are intelligently designed to detect the active video input from the video source. **HDMI Connection:** Connect the HDMI cable(s) from the video source(s) into the HDMI input(s). If using a **Component Video Cable**, connect the Y (Green), Pb (Blue), and Pr (Red) video source cable to the unit's Component input ports. If using a **Composite Video** source, use a 75Ω coaxial cable with RCA connectors to connect the **video source** (e.g., CATV, DVD, VCR, Camera) to the unit's CVBS port (IN1…IN2 depending on the HDME model).

   Repeat this step for each video source connection.
3. **Component / Composite Audio inputs**: Connect a **Digital Audio Coaxial** cable or **Optical (Toslink)** cable for Digital Audio use from the audio source. For A/V audio input (Left / Right Audio) use RCA cables to connect the **audio source** to the red / white **AUDIO L and AUDIO R INPUT jacks (**IN1…IN2 depending on the HDME model).

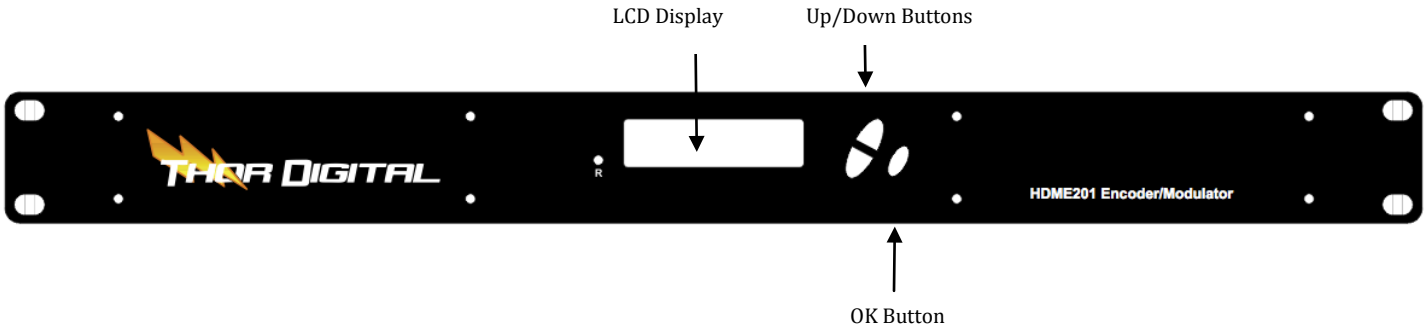
   Repeat this step for each audio source connection.

   Be sure the video and audio connections for each source are consistent with the unit's inputs (IN1…IN2 depending on the HDME model).
4. Use a quality 75Ω coaxial cable with "F" connectors from the unit's **RF OUT jack** to the **distribution system** (combiner or reverse splitter) or directly to a television.
5. Connect the included power cord to the unit's **POWER** plug.
6. Connect the power cord to an appropriately rated AC power outlet.

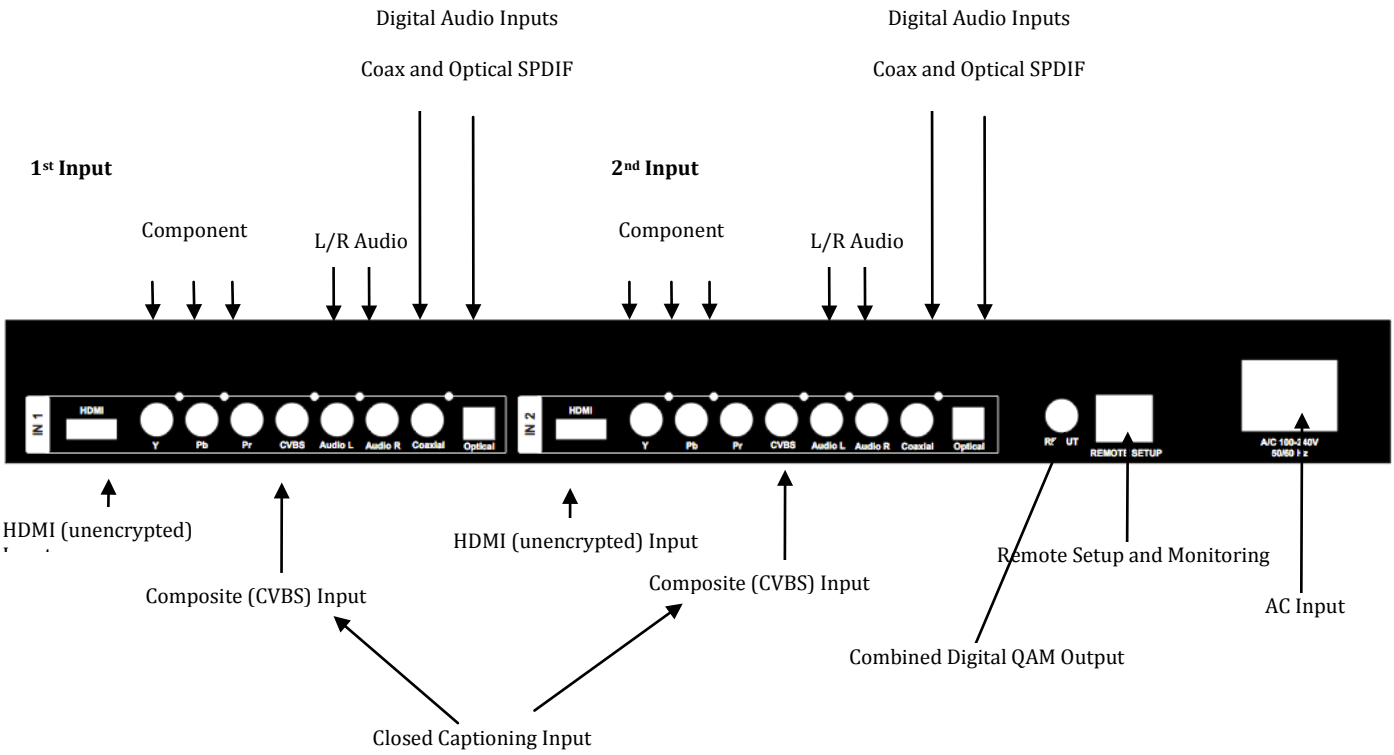

Building Distribution Network
Launch Amplifier
Combiner

IN
HDMI
Y
Pb
Pr
CVBS
Audio L
Audio R
Coaxial
Optical
RF OUT
REMOTE SETUP
A/C 100-240V
50/60 Hz

MODULATOR SETUP AND CONFIGURATION



HDME201



INITIAL SETUP

The HDME's front panel can be used to configure the modulator as desired. Below find the advanced menu setup instructions.

MODULATOR CONFIGURATION

Once the modulator is powered up it will go through an internal booting process. When "**Running**" appears in the LCD Display the unit is ready for programming or operation. (The unit will display Bit rate information shortly after "Running" appears in the LCD display).

- **Password** – Press the OK button and enter password. Use the **Scroll Up/Down and OK button to enter Password 0000**.
- **NOTE TO THE INSTALLER- SEVERAL INTERNAL FUNCTIONS ARE RESERVED OR ARE FOR FUTURE USE. SKIP OVER THESE MENUS WHEN SETTING UP THE ENCODER FOR YOUR APPLICATION.**

- **Advanced Menu** – To access the Advanced Menu first enter the password by pressing the OK button. Once the correct password is entered press the OK button and the LCD Screen will display "Advanced Menu Output Channel". The following configuration options are available under Advanced Menu:
  - **Output Channel** – Use the Scroll Up/Down button to change the output channel. Channels 2 to 135 are available. Once the desired output channel is selected press the OK button to set the channel.

    The LCD Display will show both the channel number and the frequency number of the output channel (example: 103 669.0000MHz)

    If using physical channel number – the encoder's Major and Minor number will be set using the output channel. Example: Output Channel is set to Ch 103. This would result in the display channel of 103-1 (and 103-2 if installing a dual input unit).

    Enable VCN Menu for VCN Mapping- See VCN Menu.
  - **Attenuation** – Use the Scroll Up/Down button to select Attenuation. Press the OK button to enter the Attenuation menu. Use the Scroll/Up down button to select the desired attenuation in 1dB increments from 0 to minus 20 dB. Once the desired attenuation level is found press the OK button to set.
  - **Constellation** – Use the Scroll Up/Down button to select Constellation. Press the OK button to enter the Constellation menu. The modulator allows for either QAM256 or QAM64. Select the desired Constellation then press the OK button to set. Factor Default is QAM256.
  - **Interleaver**- If needed, use the Scroll Up/Down button to select the appropriate Interleaver selection. Press the OK button to enter the Interleaver menu. Use the Scroll Up/Down button to select the desired Interleaver value and press the OK button to set. Factory default is I=128, J=8.
  - **Channel Type** – Use the Scroll Up/Down button to select Channel Type. Press the OK button to enter the Channel Type menu. Menu options are STD, HRC and IRC. The factory default is STD. Use the Scroll Up/Down button to select the desired Channel Type and press the OK button to set.
  - **RF Output** – Use the Scroll Up/Down button to select RF Output. Press the OK button to enter the RF Output menu. Menu options are Normal, Inverted and C.W. The factory default is

Normal. Use the Scroll Up/Down button to select the desired RF Output and press the OK button to set.

- **Brightness** – Use the Scroll Up/Down button to select Brightness. Press the OK button to enter the Brightness menu. Use the Scroll Up/Down button to select the desired Brightness value (0 to 255) and press the OK button to set. Factory default is 128
- **Contrast** – Use the Scroll Up/Down button to select Contrast. Press the OK button to enter the Contrast menu. Use the Scroll Up/Down button to select the desired Contrast value (0 to 255) and press the OK button to set. Factory default is 128.
- **Saturation** – Use the Scroll Up/Down button to select Saturation. Press the OK button to enter the Saturation menu. Use the Scroll Up/Down button to select the desired Saturation value (0 to 255) and press the OK button to set. Factory default is 128.
- **Hue** – Use the Scroll Up/Down button to select Hue. Press the OK button to enter the Hue menu. Use the Scroll Up/Down button to select the desired Hue value (0 to 255) and press the OK button to set. Factory default is 128.
- **Device Address** – Use the Scroll Up/Down button to select Device Address. Press the OK button to enter the Device Address menu. Use the Scroll Up/Down to select the Desired Address ranging from 1 to 255 then press OK to set.
- **Set TS ID**. Use the Scroll Up/Down button to set TS ID. Press the OK button to enter the TS menu. Use the Scroll Up/Down to select the TS ID ranging from 1 to 65535 then press OK to set.
- **Set Region Name**: Note: Do not Change for USA operation.
- **Default Configuration** –

Caution: Once the OK button is pressed the unit will automatically reset to the factory default.

All settings or changes to the encoder/modulator will be lost.

If you wish to set the modulator back to the factory default settings use the Scroll Up/Down button to reach Default Configuration then press the OK button.

- VCN- To enable Virtual Channel Mapping Scroll to VCN Menu. Press OK to enter the VCN menu. Select Enable to turn on VCN functionality. If VCN is not enabled- the output channels will be dependent on the output channel /physical number set. Factory default: Disable.
- **1 Video Input** – Use the Scroll Up/Down button to select 1 Video Input. Press the OK button to enter the 1 Video Input menu. Use the Scroll Up/Down button to select the Video Input option: Auto, Composite, Component, HDMI, or ASI*. The factory default is Auto. Press the OK button to set.

  The HDME series of Encoder/Modulators is designed with Intelligent Input Detection (IID) technology. If you select Auto, the unit will detect the input source automatically. You can set or fix the input source on any of the input types available on your unit. If the modulator has more than one video input scroll through the Advanced Menu for the additional video input menus. (2 Video Input for Dual Unit).

If a Pink Screen is present on the output channel- then the content passing through via the HDMI connector is protected and will not be displayed or if the content in MPEG2 is 1080p.

Color Bar screen indicates the video source selected is either not connected or not the correct type set. Check to ensure a proper connection is being made. Also check to ensure the Input is either on Auto or on the proper video input type.

- **1 Program Num.** Use the Scroll Up/Down button to set 1 Program Num(Number). Press the OK button to enter the 1 Program Num menu. Use the Scroll Up/Down to select the 1 Program Num ranging from 1 to 65535 then press OK to set. If the modulator has more than one video input scroll through the Advanced Menu for the additional **Program Num** menus. (2 Program Num for Dual Unit).
- **1 Short Channel Name** – Use the Scroll Up/Down button to select Short Channel Name. Press the OK button to enter the Short Channel Name menu. Use the Scroll Up/Down menu to select the first character of the desired Short Channel Name then press the OK button to set. Repeat the process until the Short Channel Name is completed. If the modulator has more than one video input scroll through the Advanced Menu for additional Short channel name menus.

  The Short Name can be 7 characters long. Factory Default is MY-DVT1 and MY-DVT2 for Dual.
- **1 Long Ch Name** – Use the Scroll Up/Down button to select Long Channel Name. Press the OK button to enter the Long Channel Name menu. Use the Scroll Up/Down menu to select the first character of the desired Long Channel Name then press the OK button to set. Repeat the process until the Long Channel Name is completed. If the modulator has more than one video input scroll through the Advanced Menu for additional Long channel name menus.

  The Long Name can be 16 characters long. Factory Default is ATSC-Digital-TV1 and ATSC-Digital-TV2 for Dual.
- **1 Source ID.** Use the Scroll Up/Down button to set 1 Source ID. Press the OK button to enter the 1 Source ID menu. Use the Scroll Up/Down to select the 1 1 Source ID. ranging from 1 to 65535 then press OK to set. If the modulator has more than one video input scroll through the Advanced Menu for the additional **Source ID** menus. (2 Source ID for Dual Unit).
- **1 Aspect Ratio** – Use the Scroll Up/Down button to select 1 Aspect Ratio. Press the OK button to enter the 1 Aspect Ratio menu. Use the Scroll Up/Down button to select the desired Aspect Ratio option of 4:3 or 16:9 then press the OK button to set. Factory default is 4:3. If the modulator has more than one video input scroll through the Advanced Menu for additional Aspect Ratio menus.
- **1 Video Output** – The HDME Series of Encoder / Modulators is Dual MODE Capable. The user may select to output video in either MPEG2 or AVC (MPEG4). Use the Scroll Up/Down button to select 1 Video Output. Press the OK button to enter the 1 Video Output menu. Use the Scroll Up/Down button to select the 1 Video Output option: MPEG2 or AVC. The factory default is MPEG2. Press the OK button to set. If the modulator has more than one Video Output scroll through the Advanced Menu for the additional Video Output menus.

  Note: The Dual Input Unit allows the installer to select a combination of Video Output formats. The HDM201 can support have both outputs broadcasting in either MPEG2 or AVC(MPEG4) or a combination of MPEG2 and AVC(MPEG4)**..**

  If a Pink Screen is present on the output channel- then the content passing through is protected and will not be displayed.

MPEG2 WILL DISPLAY UP TO 1080i – if you are sending 1080p content through the encoder a pink screen will be present.

- **1 Audio Input** – Use the Scroll Up/Down button to select. Press the OK button to enter the 1 Audio Input menu. Use the Scroll Up/Down button to select the 1 Audio Input option: Analog (L/R), Coaxial, or Optical. The factory default is Analog. Select the appropriate Input selection for your installation. Press the OK button to set. If the modulator has more than one Audio Input scroll through the Advanced Menu for the additional Audio Input menus.

  Note: When using HDMI- this step can be skipped.

- **1 Audio Output** – Use the Scroll Up/Down button to select 1 Audio Output. Press the OK button to enter the Audio Output menu. Use the Scroll Up/Down button to select the Audio Output option: AC3 (AC-3 Pass Through), MP2 (MPEG2 Layer I Audio), or AAC. The factory default is MP2. Press the OK button to set. If the modulator has more than one Audio output scroll through the Advanced Menu for the additional Audio Output menus.

- **1 Closed Caption**- Use the Scroll Up/Down button to 1 Closed Caption. Press the OK button to enter the 1 Closed Caption menu. Enable / Disable 1 Closed Caption control. If the modulator has more than one Video Output scroll through the Advanced Menu for the additional Closed Caption menus.

NOTE: WHEN USING CLOSED CAPTIONING- USER MUST CONNECT FROM THE CONTENT SOURCE THE COMPOSITE OUTPUT OR CC OUTPUT SOURCE TO THE ENCODER'S CVBS INPUT CONNECTOR

VIRTUAL CHANNEL (VCN) MAPPING- The Thor Digital Encoder offers virtual channel mapping capability.

Example: The output channel is set to 103(699.0000MHz). The user can set a VCN (Virtual Channel Number) by enabling the VCN function. The Integrator can map the Virtual Channel number to 57 The Virtual Channel Number displayed would be **57.** The VCN is independent of the output / physical channel.

- **1 VCN Channel-** Use the Scroll Up/Down button to 1 VCN Channel in the Advanced Menu. Press the OK button to enter the 1 VCN Channel menu. Set the 1 VCN Channel using the Scroll Up/Down buttons. Set Virtual Channel from 1-16383. If the unit has more than 1 input Scroll to set 2 VCN Channel in the Advanced Menu. Press the OK button to enter the 2 VCN Channel menu. **Set** 2 VCN Channel using the Scroll Up/Down buttons. Virtual Channel range: 1-16383

NOTE: We recommend setting a unique number for each program (1 VCN, 2 VCN)

❖ To **exit the Advanced Menu** use the Scroll Up/Down button to select Exit then press the OK button. Exit **Exit Menu** will appear on the LCD screen. Press the OK button twice to exit.

*** Important- Save the settings ***

❖ Once the settings are made and the modulator is programmed (a) remove power from the unit by disconnecting the power supply cable from the rear of the unit, (b) wait 5 seconds and (c) reconnect the power cable. This will allow the modulator to capture the new settings.

Procedure to connect to the Encoder via the remote setup port

The following procedure will allow the installer to setup the Encoder via the GUI

(Intranet setup- closed LAN setup)

1. Power up the Encoder.
2. Press the OK button on the Front Panel.
3. Enter the Password 0000 to enter Advanced Menu Setup.
4. Scroll to the Device Address Menu.

5. Set a unique Device address for each encoder being installed in the system.

Device Address ranges from 1~255

****** Warning: Setting the "DEVICE ADDRESS" to 0 will clear the network setting to Default value and clear IP address, Subnet Mask, and Gateway Address in the Network tab in the GUI. Will Enable DHCP.**

6. Connect each encoder using a standard CAT5e cable from the Remote Setup port (located on the rear panel of the encoder) to a switch. Connect a CAT5e cable from the switch a PC.

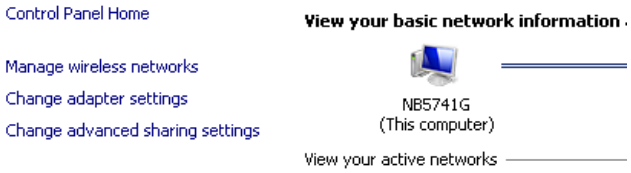
NOTE: To connect to the encoder directly to a PC use a CAT5e Crossover cable

7. Set the PC via the Control Panel to **"Obtain an IP address automatically**

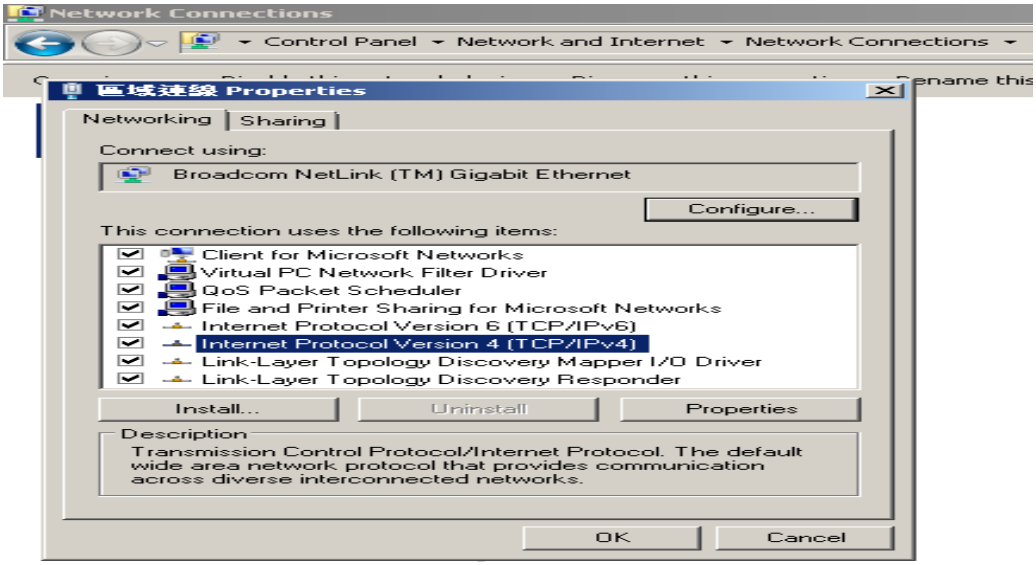
8. Start- Control Panel

View Network Status and Tasks

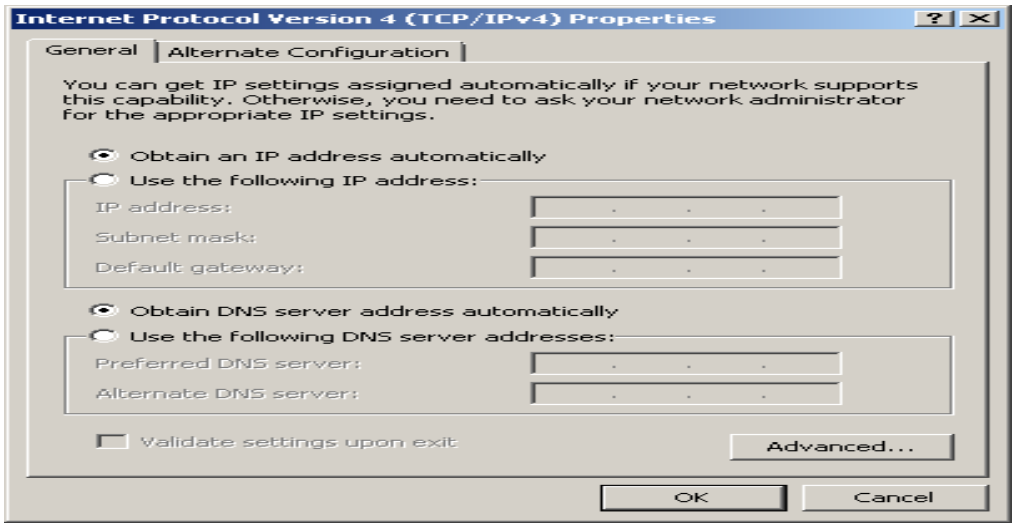
9. **Select** Change Adapter Settings



10. **Select** Internet Protocol Version 4(TCP/IPv4) Properties



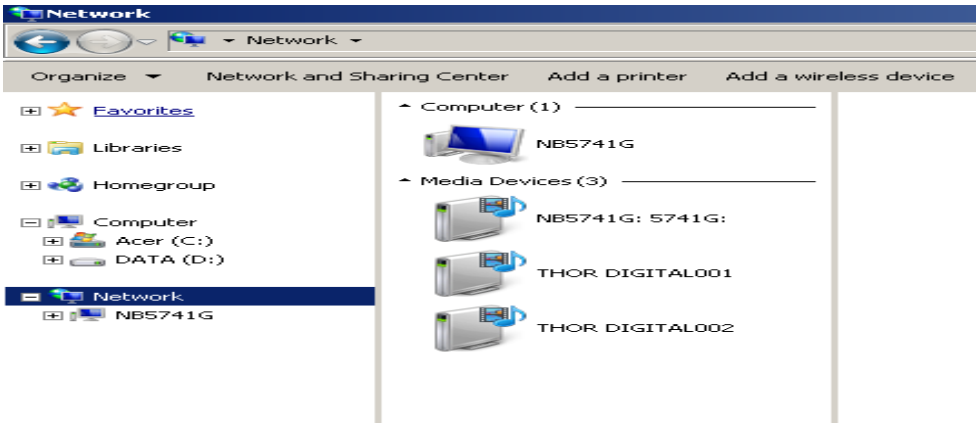
11. **Select** "Obtain an IP address automatically" & "Obtain DNS server address automatically"


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

12. After setting the PC to obtain IP address & Obtain DNS server automatically

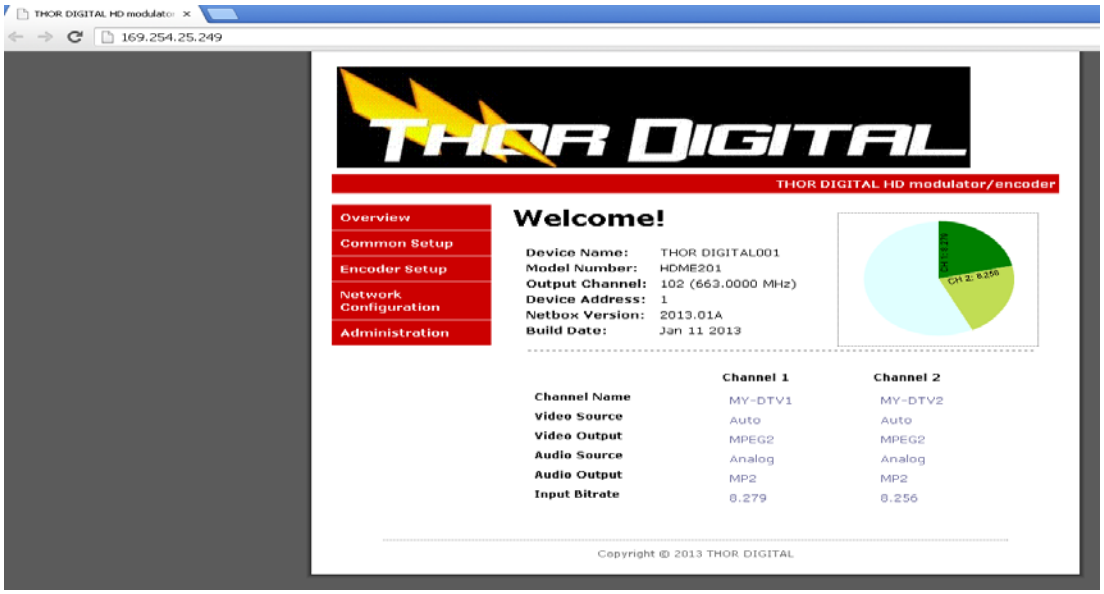
    Select Start- Computer- Network

13. After selecting Network- the encoders will show up on the right side under Media Devices. Each device will show up by Device Address. (THOR DIGITAL001, 002, 003...)

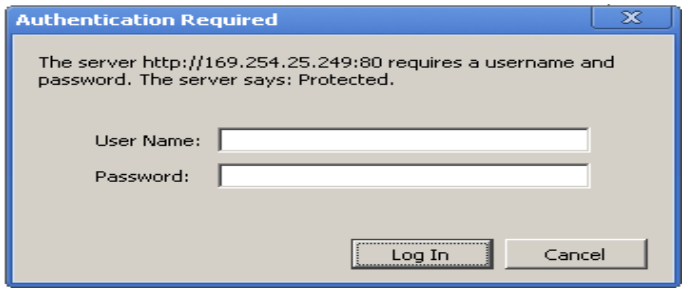


14. **Click** the icon for the Encoder you want to setup**. Right Click** and **View device webpage'.**

15. Welcome page will be displayed as shown



16. **Select** the Common Setup tab. User will be presented with encoders ***'Authentication Required'*** screen.



17. **Enter** User Name and Password.

    User Name: **admin**

    Password: **Admin123**

18. Change settings of the encoder via the Common Setup, Encoder Setup, Network Configuration, and Administration Tabs.

19. Confirm '**Enable DHCP'** check box is selected for closed in-house network

    Select Network Configuration Tab to check

**If using internet to connect see 'Procedure to connect to the Encoder for remote access and monitoring'

20. **Save all changes**. The user is required to perform a 'Local Save' if any changes are made on the Common / Encoder Setup tabs. Once all changes have been made and are complete- use the **Upload and Reboot function** to apply changes.

21. ***'Waiting for device rebooting'*** will appear as unit reboots and save the changes.

22. After the encoder recovers from rebooting- we recommend you save/ backup the configuration file for each encoder.

23. **Select** Administration Tab- then **Backup.** A **config.hex** file will be created. The file will be located in My Computer->C Directory->Documents and Settings->User->My Documents->Downloads>configs.hex

NOTE TO INTEGRATOR-

CONFIGURATION FILES FOR THE SINGLE AND DUAL ENCODES ARE DIFFERENT AND ARE NOT INTERCHANGEABLE.

WE HIGHLY RECOMMEND YOU RENAME THE CONFIG.HEX FILES FOR EACH ENCODER DEVICE

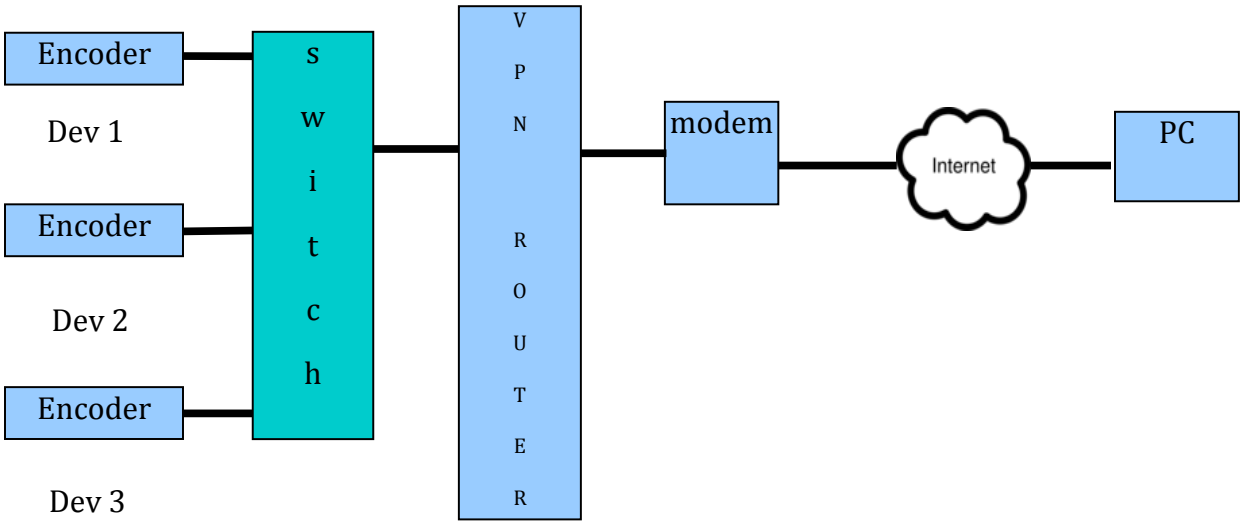
EXAMPLES: config_single_dev1_sitename.hex , config_dual_dev2_sitename.hex

Procedure to connect to the Encoder for remote access and monitoring

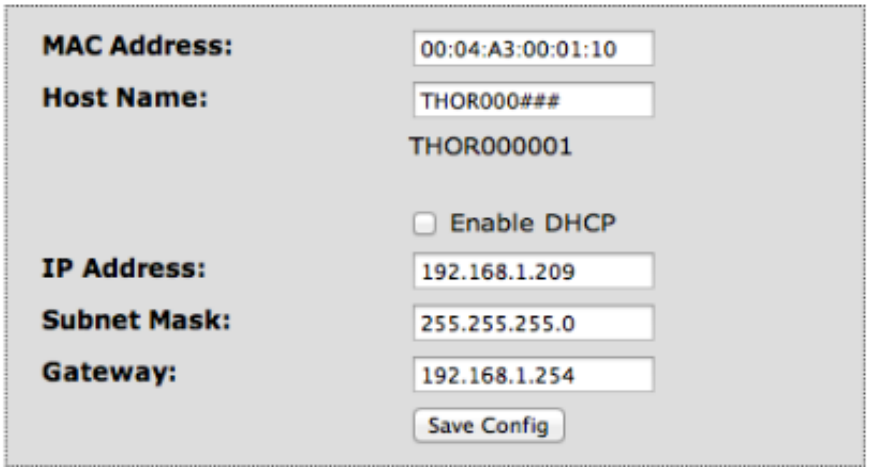
The following procedure will allow the integrator to access the encoder via the internet for remote status monitoring and control.

Overview of Setup

Accessing the Encoders via the internet will require a VPN device with a Static IP



1. Using the instructions located in ***Procedure to connect to the Encoder via the remote setup port*** enter a unique Device Address for each encoder.
2. **Setup** each encoder's output channel and other parameters as required.
3. **Select** the Network Configuration Tab.
4. **Deselect** 'Enable DHCP'



5. Enter a unique Static IP address for each encoder.
6. Enter the Subnet Mask.
7. Enter the Gateway IP address from VPN device.
8. **Save** Configuration of Network settings by selecting **Save Config** button.
9. Connect the Ethernet switch to the VPN Device (Static IP Required) connected to the internet.

   Contact your network administrator for the VPN device setup
10. Establish a VPN connection from a PC or laptop from an external internet connection.
11. Once the VPN tunnel has been established- Enter the Specific IP address of the Encoder you which to monitor in your internet browser (example: 192.168.100.10)
12. Save any changes made to the encoder and reboot encoder.

HDME MODULATOR NOTES

PRODUCT NOTES:

ITEM	VALUE
PASSWORD	
SERIAL NUMBER	
INSTALLATION DATE	
PURCHASE DATE	
VIDEO 1 INPUT	
VIDEO 2 INPUT	

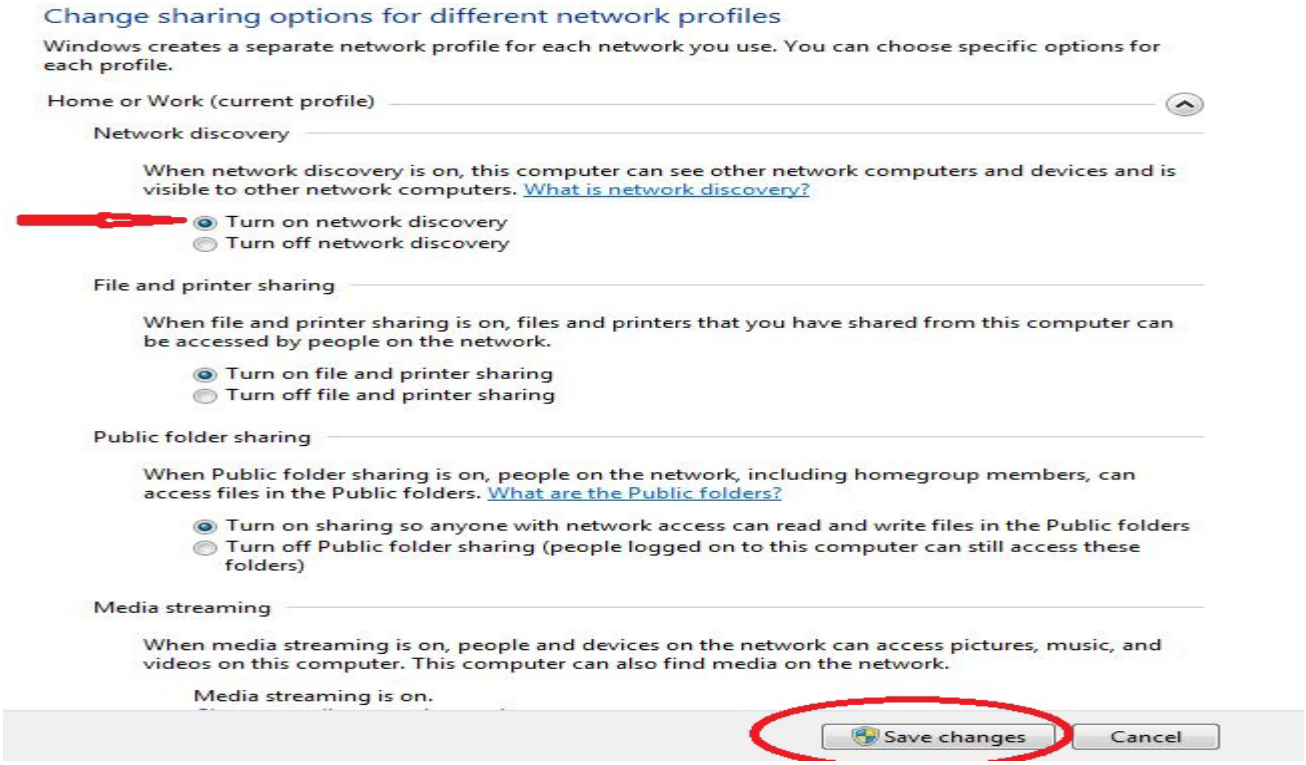
UPnP Help Section for Windows

Windows 7:

Follow these steps to enable UPnP in **Windows 7**

1. **Control Panel**- Locate Icon for '***Network and Sharing Center'***
2. **Click *'Change Advanced sharing settings'*** (located on the top left side)

3. **Select 'Turn on network discovery'** located under **Network Discovery** section


Change sharing options for different network profiles
Windows creates a separate network profile for each network you use. You can choose specific options for each profile.
Home or Work (current profile)
Network discovery
When network discovery is on, this computer can see other network computers and devices and is visible to other network computers. What is network discovery?
Turn on network discovery
Turn off network discovery
File and printer sharing
When file and printer sharing is on, files and printers that you have shared from this computer can be accessed by people on the network.
Turn on file and printer sharing
Turn off file and printer sharing
Public folder sharing
When Public folder sharing is on, people on the network, including homegroup members, can access files in the Public folders. What are the Public folders?
Turn on sharing so anyone with network access can read and write files in the Public folders
Turn off Public folder sharing (people logged on to this computer can still access these folders)
Media streaming
When media streaming is on, people and devices on the network can access pictures, music, and videos on this computer. This computer can also find media on the network.
Media streaming is on.
Save changes
Cancel

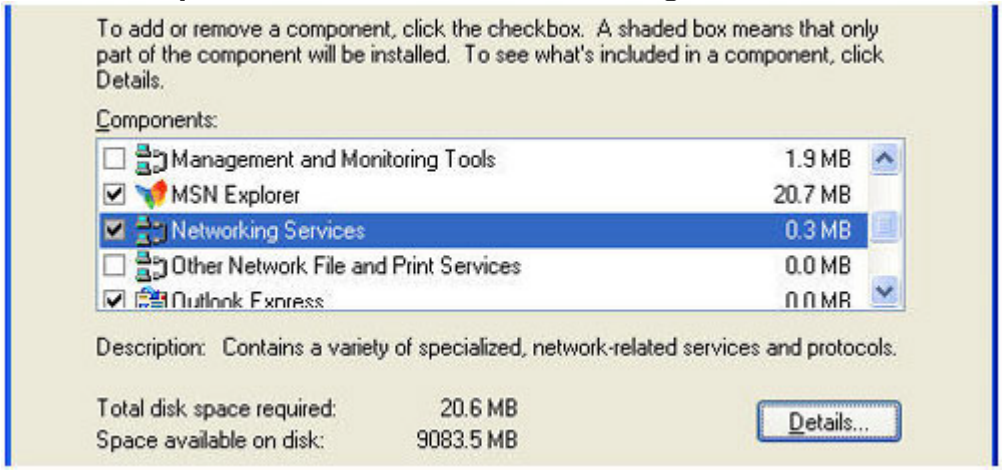
4. **Save** Changes.

For the UPnP architecture to work in Windows XP, the Internet gateway device must appear in Network Connections.

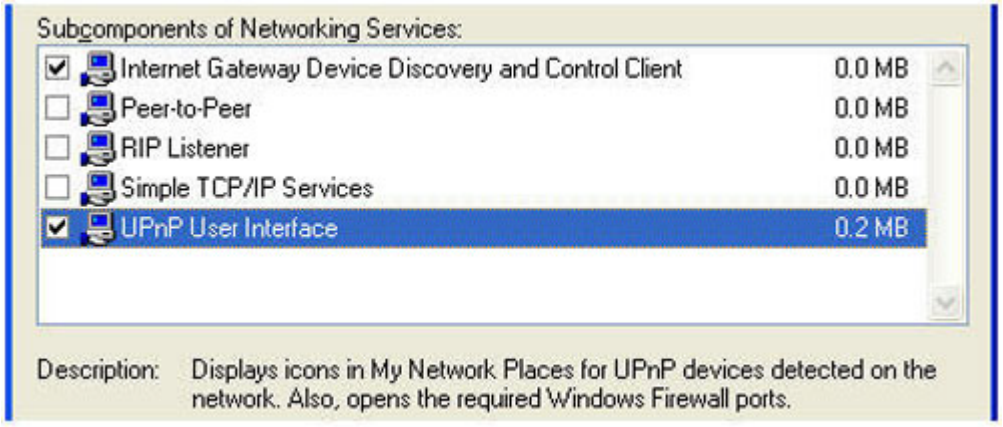
Windows XP:

Click **Start**, click **Run**, type **appwiz.cpl**, and then click **OK**.

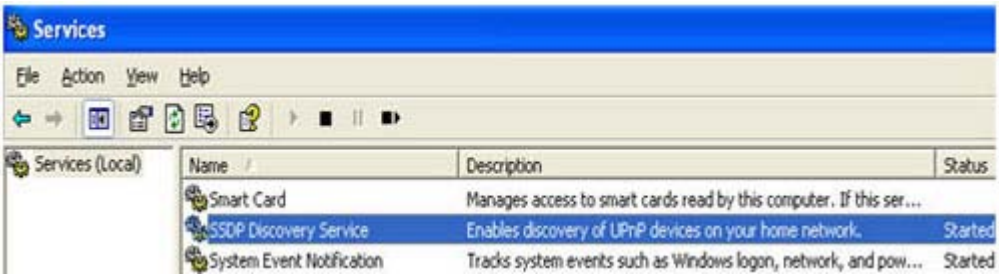
1. Click **Add/Remove Windows Components**.
2. In the **Components** window, click **Networking Services**, and then click **Details**.


To add or remove a component, click the checkbox. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.
Components:
Management and Monitoring Tools 1.9 MB
MSN Explorer 20.7 MB
Networking Services 0.3 MB
Other Network File and Print Services 0.0 MB
Outlook Express 0.0 MB
Description: Contains a variety of specialized, network-related services and protocols.
Total disk space required: 20.6 MB
Space available on disk: 9083.5 MB
Details...

3. Click to select the **Internet Gateway Device** and **UPnP User Interface** check boxes in the **Subcomponents of Networking Services** window, if they are not selected.


Subcomponents of Networking Services:
Internet Gateway Device Discovery and Control Client 0.0 MB
Peer-to-Peer 0.0 MB
RIP Listener 0.0 MB
Simple TCP/IP Services 0.0 MB
UPnP User Interface 0.2 MB
Description: Displays icons in My Network Places for UPnP devices detected on the network. Also, opens the required Windows Firewall ports.

4. Follow the instructions that appear on the screen to complete the installation. Or, if you did not make any changes, close the Add or Remove Programs windows and Control Panel.
5. Start the Services MMC snap-in. To do this, click **Start**, click **Run**, type **services.msc**, and then click **OK**.
6. Locate **SSDP Discovery Service** in the list of services.



7. If the status is not **Started**, double-click **SSDP Discovery Service** to open the **SSDP Discovery Service Properties** dialog box.

8. In the **Startup type** box, click **Automatic**, and then click **Start** under **Service status**. Then, close the **SSDP Discovery Services Properties** dialog box.

After you follow these steps, the SSDP Discovery Service is running and will automatically start when you start the computer.

Note After you enable UPnP and start the SSDP Discovery Service, it may take 10 minutes for a router to be discovered and appear in Network Connections and in My Network Places.

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